

US-PAT-NO: 5373327

DOCUMENT-IDENTIFIER: US 5373327 A

TITLE: Detection, correction and  
display of illegal color  
information in a digital  
video signal

DATE-ISSUED: December 13, 1994

INVENTOR-INFORMATION:

NAME	STATE	ZIP CODE	COUNTRY	CITY
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APPL-NO: 08/ 023248

DATE FILED: February 25, 1993

US-CL-CURRENT: 348/645, 348/180

ABSTRACT:

The present invention legalizes a video signal (e.g., 4:2:2 format) being processed in one format so that the video signal can be transformed to other formats (e.g., analog composite NTSC format). An editor can be notified of color legalities in a video signal. Further, each pixel of a video signal can be corrected to the nearest legal value by applying soft limits and gain slopes to a constant luminance color correction process.

In accordance with the present invention, illegal colors of a video signal can be highlighted to provide an output drive for a video display which can be easily monitored by an editor. Alternate features of the present invention relate to error detecting and monitoring by assigning a specific, unique address to each video frame of a video signal. A further feature of the present invention relates to use of a pixel selecting means which receives 4:2:2 video data in either serial or parallel form. The data is converted to an analog component format and used to drive a video display monitor where the video image is displayed. The pixel selecting means can, for example, include a mouse/trackball input which is correlated to the video display monitor.

20 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

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Brief Summary Text - BSTX (26):

where Cr', Cb' are "legalized" versions of Cr and Cb; Y remains unchanged to preserve constant luminance. Further, the ratio between Cr and Cb remains

**unchanged to preserve constant hue.** For an NTSC composite input video signal (V.sub.in), X is determined as follows:

US-PAT-NO: 5638138

DOCUMENT-IDENTIFIER: US 5638138 A

TITLE: Method for electronic image  
dynamic range and contrast  
modification

DATE-ISSUED: June 10, 1997

INVENTOR-INFORMATION:

NAME	STATE	ZIP CODE	CITY	COUNTRY
Hickman; Charles B.	CA	93063	Simi Valley	N/A

APPL-NO: 08/ 257383

DATE FILED: June 9, 1994

US-CL-CURRENT: 348/678, 348/645 , 348/712 ,  
348/713

ABSTRACT:

A dynamic range and contrast modification method for electronic images, and digital and analogue implementations are disclosed.

Dynamic range changes are accomplished by making linear and nonlinear modifications to the low frequency component. Contrast changes are accomplished by making cross dependent, linear, and nonlinear modifications to the high frequency component. Cross dependent modifications are modifications that depend upon the changes to the low frequency component. Modifications are

achieved using processor elements that implement mathematical operations. An automatic gain control, AGC, is used to control the low frequency component modification for some embodiments.

70 Claims, 16 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 9

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Detailed Description Text - DETX (14):

FIG. 6 depicts how chrominance components CHIN 905 can be modified by same ratio 915 as the change in the luminance processor 950. The luminance processing 950 is depicted in FIG. 1 and has been explained above. The instantaneous transfer ratio of the luminance processor 950 is calculated in block 915. The ratio is determined by a digital divider that divides YOUT 505 by YIN 105. The ratio from 915 is used in a digital multiplier 920 to scale the chrominance components CHIN 905 to produce modified chrominance components CHOUT 910. The chrominance components CHIN 905 are composed of standard chrominance terms  $C_{sub.r}$  and  $C_{sub.b}$ . One ordinarily skilled in the art can appreciate the fact that for reasons of simplicity zero processing delays are assumed herein. This assumption allows for the explanation of the essence of the present invention without the inclusion of

numerous compensating delays  
that do not enhance the understanding of the  
patent. Thus when the ratio is  
calculated in 915, YOUT 505 corresponds to the same  
image element as YIN 105  
except it may have been modified in amplitude by  
the luminance processor 950.

US-PAT-NO: 5412487

DOCUMENT-IDENTIFIER: US 5412487 A

TITLE: Video camera and apparatus  
for extracting an object

DATE-ISSUED: May 2, 1995

INVENTOR-INFORMATION:

NAME	STATE	ZIP CODE	COUNTRY	CITY
Nishimura; Ryuji	N/A	N/A	JP	Yokohama
Yamamoto; Mayuko	N/A	N/A	JP	Kawasaki
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APPL-NO: 08/ 159132

DATE FILED: November 30, 1993

PARENT-CASE:

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part application of U.S. application Ser. No. 940,348, filed Sep. 3, 1992, now U.S. Pat. No. 5,347,391, issued Sep. 13, 1994, which is a continuation-in-part application of U.S. application Ser. No. 798,892, filed Nov. 27, 1991, now U.S. Pat. No. 5,293,255, issued Mar. 8, 1994, the subject matter of each of the aforementioned applications being incorporated by reference herein.

COUNTRY	FOREIGN-APPL-PRIORITY-DATA:	
APPL-DATE	APPL-NO	
JP	4-320336	November
30, 1992		
JP	5-011732	January
27, 1993		

US-CL-CURRENT: 358/452, 348/346

#### ABSTRACT:

A video camera and apparatus for extracting an object from a video signal. The video camera and the extracting apparatus include units for setting a plurality of different parameters for distinguishing a plurality of areas in an input video signal according to the plurality of different set parameters, a unit for determining an extracting area in accordance with the plurality of areas distinguished by the setting units, and an extracting unit for generating extracting information for the extracting area for the video signal. The video camera includes a unit for controlling an operation of the video camera in accordance with the extracted information. Alternatively or additionally, the video camera includes a unit for indicating an area of a portion of an object viewed by a camera operator, a unit for sampling the video signal in the region of the indicated area, a unit for setting at least one parameter of the portion of the object in accordance with the sampled video signal, and an extracting unit for extracting at least the portion of the object in accordance with the

set parameter. The video camera further includes a control unit for controlling an operation of the video camera in accordance with the extracted portion of the object.

32 Claims, 21 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

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Detailed Description Text - DETX (37):

At this time, if a change in illuminance occurs, Cr and Cb change proportionally to 1. Since the ratio between the color difference signal Cr and Cb, Cr/Cb, is constant, there is no change in hue, but saturation changes proportionally to 1. Consequently, when there is produced a change in illuminance, it sometimes becomes impossible to achieve stabilized extraction of an object.